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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	Johannes Kaeppeler
Application No. 10/751,390	Filing Date: January 5, 2004
Title of Application:	CVD Device with Substrate Holder with Differential Temperature Control
Confirmation No. 2672	Art Unit: 1763
Examiner	Sylvia R. MacArthur

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Reply Brief Under 37 CFR §41.41

Dear Sir:

Having received the Examiner's Answer, Appellant submits this Reply Brief for the above-captioned application pursuant to 37 C.F.R. §41.41 as follows.

Most of the arguments presented in the Examiner's Answer were presented during prosecution, and thus, have already been dealt with in Appellant's Appeal Brief. Appellant submits this Reply to briefly elaborate on issues raised in the Examiner's Answer.

Claim 1 recites "said substrate holder having a first zone and a second zone . . . the first zone having a surface temperature (t_1) and the second zone having a surface temperature (t_2) . . . where t_1 is greater than t_2." Claims 14, 18 and 19 recite "a first substrate holder zone . . . having a surface temperature (t_1)" and "a second substrate holder zone . . . having a surface temperature (t_2) . . . where t_1 is greater than t_2."

The Examiner has submitted that "Rupp et al teaches that the insert 2 (zone 1) is made of a metal while the susceptor is made of coated graphite." (Examiner's Answer, p. 4)

Appellant submits that the claims recite that a "substrate holder" has "a first zone and a second zone" that exhibit different temperatures. The Examiner has pointed to "insert 2 (zone 1)" and the "susceptor" (zone 2) as making up the two zones of the substrate holder. However, a reading of Rupp et al. discloses that item 2 is the actual "substrate 2" itself. (Pars. 30-32) Appellant respectfully submits that the substrate 2 itself cannot comprise a part of the "substrate holder" as recited in all the pending claims. Appellant notes that the substrate 2 rests entirely on the susceptor 1. (Par. 35; FIGS. 2 & 3B)

Appellant notes that a "covering 5" is positioned on top of "susceptor 1." (Par. 36; FIG. 2) However, Appellant respectfully submits that the covering 5 does not hold or support the substrate 2 in any way and in fact, does not contact the substrate at all. (Par. 37) Accordingly, the "covering 5" could not be read as comprising a first or second zone of the substrate holder. However, even if one were to extend the Rupp et al. application in this manner, there is no disclosure that the temperatures would differ. In fact, the Rupp et al. application discloses that it is necessary that the area surrounding the substrate has the same temperature as the substrate itself. (Par. 44) The device of the presently pending claims has a substrate holder with two zones of different electrical conductivity. The substrate holder of the Rupp et al. application has a substrate holder with only one zone of a single electrical property. The Rupp et al. application proposes

a covering surrounding the substrate, which has identical thermal conductivity as the substrate.

With regard to the Rupp et al. application, the Examiner has submitted that "Rupp et al does not specifically teach that the materials of construction between the insert and the susceptor differ basis [sic] electrical conductivity, it is noted that electrical conductivity is a physical property that is inherent to materials of construction" and that "Rupp et al teaches that the insert 2 (zone 1) is made of a metal while the susceptor is made of coated graphite." (Examiner's Answer, p. 4) The Examiner then states that "Rupp et al fails to specifically recite a difference in temperature" but "that this temperature variation is inherent due to the use of different material of construction between the insert and the substrate holder" that that "[i]t is the materials of construction that drive the temperature variation." (Examiner's Answer, pp. 4-5) Accordingly, the Examiner has essentially stated that while Rupp et al. does not explicitly disclose two temperature zones having differing surface temperatures, it is inherent to the disclosure of Rupp et al. as there are two zones formed of different materials that exhibit different electrical characteristics. As stated above, the Examiner is pointing to the actual substrate itself as part of the substrate holder. However, the Examiner's conclusions above fail for still another reason.

Appellant respectfully submits that even if the "insert 2" ("substrate 2") and the susceptor 1 do comprise differing materials, this does not require the conclusion the Examiner has submitted (e.g. that they necessarily have different temperatures). The Examiner's argument is based on the abstract assumption that if a first item and a second item comprise differing materials, and that difference in and of itself necessitates each will exhibit a different surface temperature. However, Appellant notes that the Examiner is operating under the assumption that power is constantly and equally being applied to both of the items. However, this is not disclosed or taught in Rupp et al. application. Even if the insert and the susceptor do comprise differing materials, this in and of itself does not require the surface temperatures to differ as

greater current could be induced in one or the other. This argument holds true also for the susceptor 1 and the covering 5.

A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007); *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282 (1976). In this case, the Rupp et al. application does not disclose or teach that an area holding the substrate is provided at a higher temperature than the surrounding area.

With regard to the Rupp et al. patent, Appellant notes that the claim 1 recites that the first zone of higher electrical conductivity substantially corresponds to an area of the supported surface of the substrate. Likewise, claim 14 recites the first substrate holder zone substantially corresponding to an area taken up by the substrate, while claims 18 and 19 recite the first substrate holder zone directly contacting the substrate. The first substrate holder zone, therefore, corresponds to the substrate itself such that the increased surface temperature of the first zone is directly transferred to the substrate when compared to the area surrounding the substrate. In the Rupp et al. patent, it is clear that the insert 2 takes up an area quite a bit larger than the substrate itself. This would result in an area of increased heating adjacent to or around the substrate. Due to the inherent inefficiencies of heat transfer from one surface to the next, the substrate will necessarily be a lower temperature than the surface temperature of the insert surrounding (but not contacting) the substrate. This problem was clearly outlined in the pending application at paragraphs 4-5. To address this very issue, the area to which the substrate directly contacts is provided with an increased surface temperature such that the substrate will exhibit a surface temperature comparable with the surrounding area even taking into consideration any temperature drop due to a gap between the

substrate and the substrate holder. The Rupp et al. patent cannot solve this problem, however, because the insert is made of a material that exhibits a uniform temperature across its surface. Therefore, like the Rupp et al. application, the Rupp et al. patent fails to disclose or teach that the area holding the substrate is provided at a higher temperature than the area surrounding the substrate.

Accordingly, Appellant respectfully submits that the presently pending claims cannot be anticipated by or are obvious in view of Rupp et al.

Respectfully submitted,

February 26, 2008

/ Wesley W. Whitmyer, Jr./

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